Takoma Park Neighborhood Traffic Calming Study
Pinecrest

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Executive Summary

The residents of the Takoma Park neighborhood of Pinecrest, located in southeastern Montgomery County, Maryland, have expressed concerns of speeding and cut-through traffic within their neighborhood roadways. The following traffic calming study investigates the extent of the travel speeds and cut-through traffic and proposes measures to further calm and minimize traffic within the neighborhood.

The site description identifies the location of the study neighborhood and describes details of the roadway network, the intersections, and the surrounding area of the study neighborhood. Field observations of the neighborhood were performed to evaluate the geometrics, existing conditions and traffic characteristics of the neighborhood roadway network.

A morning and evening peak period origin-destination count was performed at the Pinecrest access intersections to obtain traffic volumes entering and exiting the neighborhood and to determine the amount of cut-through traffic using the neighborhood roadways. Currently Sligo Mill Road and Fourth Avenue are used extensively as cut-through routes.

Peak period travel times were collected along the Pinecrest neighborhood cut-through routes and the routes that would be taken by non-cut-through traffic for the same destinations to determine the time saved by motorists that use the cut-through routes. The Sligo Mill Road and Fourth Avenue cut-through routes do save significant time avoiding the MD 650/ Eastern Avenue intersection.

Spot speed studies were performed during the non-peak periods at locations along the neighborhood roadways to determine travel speeds within the neighborhood roadways. Currently Sligo Mill Road, Fourth Avenue, Kansas Lane, and Poplar Avenue experience travel speeds above the posted speed limit of 25 mph for all neighborhood roadways.

Proposed measures to calm traffic and reduce cut-through traffic volumes include additional speed hump locations, additional Speed Limit signs, Stop sign revisions, and chicane installation location.

A. INTRODUCTION

As requested by the City of Takoma Park, Wallace, Montgomery & Associates, LLP (WM&A) is hereby providing the results of a comprehensive Neighborhood Traffic Calming Study for the Pinecrest neighborhood in Takoma Park, Maryland. The following report evaluates the existing neighborhood roadway and intersection traffic conditions and proposes measures to mitigate speeding and cut-through traffic. Specifically, this study addressed the following items:

- Roadway and intersection conditions and traffic control measures
- Traffic volumes entering and exiting the neighborhood
- Origin-destination analysis to measure cut-through traffic
- Roadway speed analysis
- Field observations
- Recommendations for traffic calming improvements

B. BACKGROUND

A coordination meeting with the community stakeholders of Takoma Park was held on Wednesday, May 16, 2007 to discuss neighborhood speeding and cut-through traffic concerns in the Long Branch/ Sligo, New Hampshire Gardens, and Pinecrest neighborhoods. The results from this meeting include the following:

- Speeding within the neighborhood roadways was more of a concern than cut-through traffic, because the community acknowledged that the public has the right to use these roadways.
- It was acknowledged that the posted speed limit of 25 mph could not be reduced as this is the minimum allowable posting. However, the residents expressed interest in reducing speeds below 25 mph through implementation of additional traffic calming devices.
- Speeding is more likely to occur during off-peak times of the day.
- Identified the major cut-through routes.

Traffic calming measures can be divided into two categories:

1. Methods to reduce travel speeds to acceptable levels
2. Methods to reduce through traffic volumes to acceptable levels

The possible traffic management devices that may reduce speeds include:

- Speed Humps
- Stop Signs
- Chicanes, Chokers, Bump-outs
- Traffic Circles/ Roundabouts

The possible traffic management devices that may reduce through traffic include:

- Speed Humps
- No Left/ Right Turn Signs
- One-way Street
- Traffic Circles/ Roundabouts
- Median Barrier
- Forced Turn Channelization
- Semi-Diverter
- Diagonal Diverters
- Cul-de-Sac

C. SITE DESCRIPTION

1. Study Location

The Pinecrest residential neighborhood is located in the southeast area of Takoma Park in Montgomery County, Maryland. The neighborhood borders Eastern Avenue and the Washington D.C. line to the southwest, MD 650 (New Hampshire Avenue) and Takoma Park Plaza to the southeast, and Poplar Avenue and the Washington-McLaughlin Christian School to the north. The neighborhood provides access along MD 650 (New Hampshire Avenue) and Eastern Avenue. **Figure 1** illustrates the location of the neighborhood.

2. Roadway Conditions

The roadways within the Pinecrest neighborhood are closed-section, two-lane, two-way, roadway widths ranging from 26 ft to 30 ft, and speed limits of 25 mph. The following roadways were studied:

- Kansas Lane (26’ wide)
- Fourth Avenue (26’ wide)
- Fifth Avenue (27’ wide)
- Sligo Mill Road (27’ wide)
- Poplar Avenue (30’ wide)
- Orchard Avenue (26’ wide)
- Cockerille Avenue (26’ wide)
- Allegheny Street (26’ wide)
- Westmoreland Avenue (27’ wide)

Kansas Lane to Westmoreland Avenue to Fourth Avenue to Poplar Avenue, Fourth Avenue to Poplar Avenue, and Sligo Mill Road to Sheridan Street were identified as the major cut-through roadways within the neighborhood. Sligo Mill Road and Cockerille Avenue provide speed humps at various locations to slow speeds. On-street parking is permitted throughout the neighborhood. **Figure 1** illustrates the neighborhood roadway network and locations of speed humps.

3. Intersection Conditions

All of the intersections within the Pinecrest neighborhood are stop controlled. All-way stop control is provided for all intersections except for the Kansas Lane/ Cockerille Avenue, Fourth Avenue/ Orchard Avenue, Fifth Avenue/ Orchard Avenue, and Sligo Mill Road/ Sheridan Street intersections. The following access intersections were studied to determine the amount of cut-through traffic (See **Figure 1** for intersection locations):

- Eastern Avenue @ Sligo Mill Road – 1-way stop controlled
- Sligo Mill Road @ Sheridan Street – 1-way stop controlled
- Fourth Avenue @ Westmoreland Avenue – 4-way stop controlled
- MD 650 @ Poplar Avenue – Signalized

The Poplar Avenue/ Fourth Avenue intersection has left-turn restrictions from westbound Poplar Avenue in the morning from 6:30 – 9:00 AM and right-turn restrictions from northbound Fourth Avenue in the evening from 3:00 – 7:00 PM, Monday through Friday. The Sligo Mill Road/ Orchard Avenue intersection has left-turn restrictions from eastbound Orchard Avenue in the evening from 3:00 – 6:00 PM and right-turn restrictions from southbound Sligo Mill Road in the morning from 6:30 – 9:00 AM, Monday through Friday. The Eastern Avenue/ Sligo Mill Road intersection has left-turn restrictions from westbound Eastern Avenue in the morning from 6:30 – 9:00 AM.

4. Field Observations

Observations of the Pinecrest neighborhood roadway network were performed specifically focused on driver behavior, traffic patterns, roadway geometry, and overall traffic operations. The following information summarizes the observations:

- Observed vehicles disobeying the Stop signs along the Sligo Mill Road, Fourth Avenue, and Kansas Lane.
- Observed on-street parking being utilized throughout the neighborhood. Many motorists would yield to opposing traffic through areas where travel widths was limited due to parked vehicles.
- Identified posted speed limit signs along Sligo Mill Road and Fourth Avenue.
- The signs throughout the neighborhood were in good condition and proper sizes.
- Observed a few Stop signs obstructed by vegetation.
- The location of the left-turn restriction sign at the Eastern Avenue/ Sligo Mill Road intersection is frequently disobeyed, because motorists do not notice the sign until they turn left onto Sligo Mill Road.
- Observed that the majority of motorists accessing the Washington-McLaughlin Christian School use MD 650.
- Observed a large day-labor population congregating along Sheridan Street through-out the day.

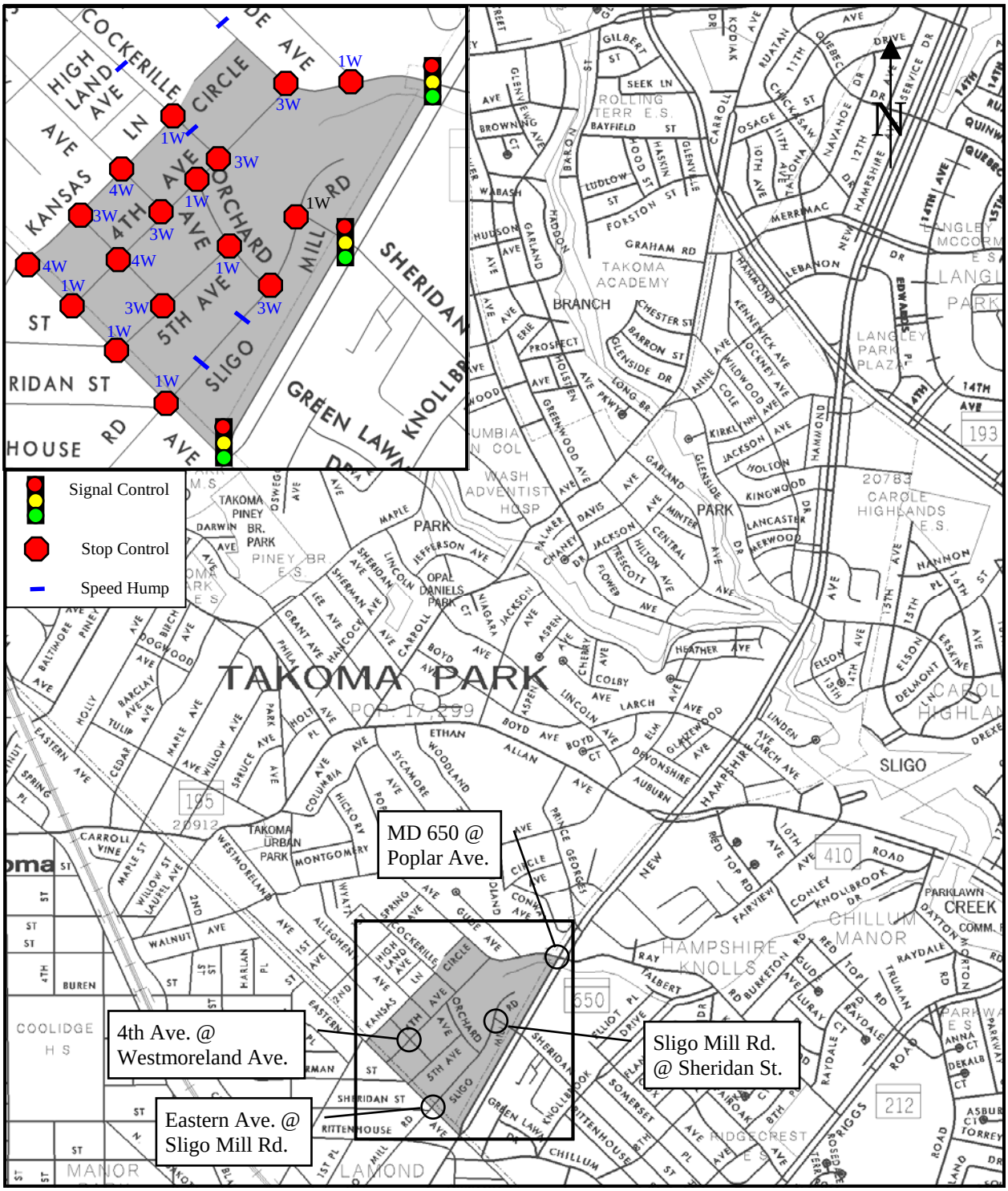

Figure 1. Study Location Map

WALLACE, MONTGOMERY & ASSOCIATES, LLP

D. TRAFFIC ANALYSES

1. Origin-Destination Analyses

A license plate style origin-destination study was performed during the morning (7 AM – 9 AM) and evening (4 PM – 6 PM) peak periods on Thursday, May 24, 2007 at the Long Branch/ Sligo neighborhood access intersections to determine the amount to cut-through traffic in the neighborhood. License plate numbers of each vehicle entering and exiting the neighborhood were recorded at 15-second intervals. The time-stamped recordings at the MD 650 intersections were then compared and matched with recordings at the Eastern Avenue intersections to determine which vehicles were passing through the neighborhood. **Figure 2** displays the peak period volumes and percent cut-through volume entering and exiting each neighborhood access intersection; and **Appendix A** provides detailed worksheets of the origin-destination analyses. A 25% or more cut-through volume is considered significant.

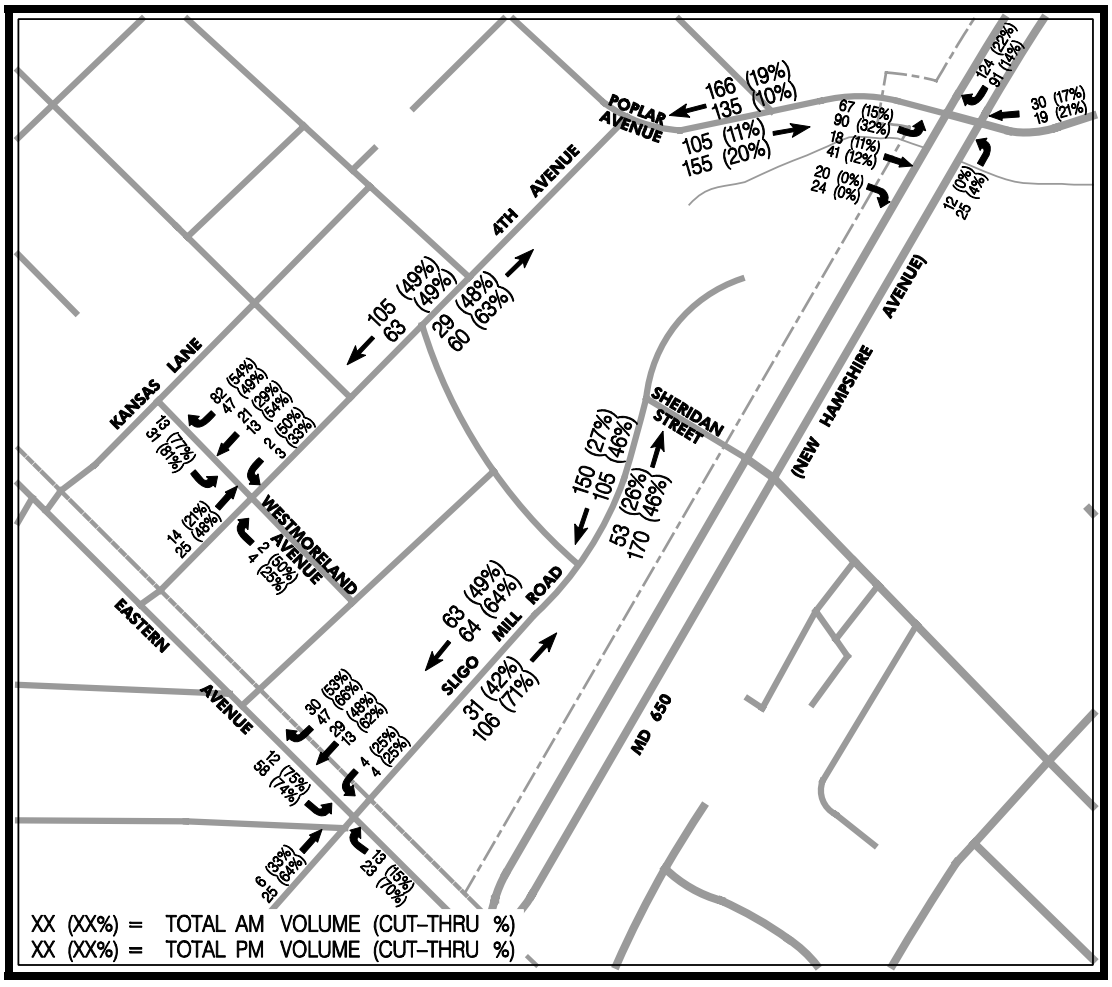

Figure 2. Volume Map

Significant cut-through traffic occurred along Sligo Mill Road and Fourth Avenue during both peak periods.

2. Travel Time Analyses

A Travel Time analysis was completed to compare the time it takes to drive ***through*** the Pinecrest neighborhood versus the time it takes to drive ***around*** the neighborhood to determine the time-savings motorists incur by cutting through the neighborhood.

Travel times were collected on Wednesday, June 6, 2007 during the morning peak period along the Pinecrest neighborhood cut-through routes and several key circulating routes around the neighborhood. These routes are displayed with their respective travel times in **Figure 3**.

The cut-through routes along Fourth Avenue do significantly decrease the travel time to avoid the MD 650/ Eastern Avenue intersection coming from the north or south; and the cut-through route along Sligo Mill Road does significantly decrease the travel time to avoid the MD 650/ Eastern Avenue intersection coming from the south only.

Table 1 below provides travel times for various begin and end points, comparing the route through the Pinecrest neighborhood versus traveling around the neighborhood.

Table 1. Travel Time Comparisons

Route	Cut – Through Route*	Non-Cut Through Route*	Cut – Through Time Savings / (Increase)
Point A to D	3:05	3:59	0:54
Point D to A	3:05	4:53	1:47
Point C to B	2:13	2:08	(0:05)
Point B to C	2:13	1:04	(1:09)

* x:xx = minutes : seconds

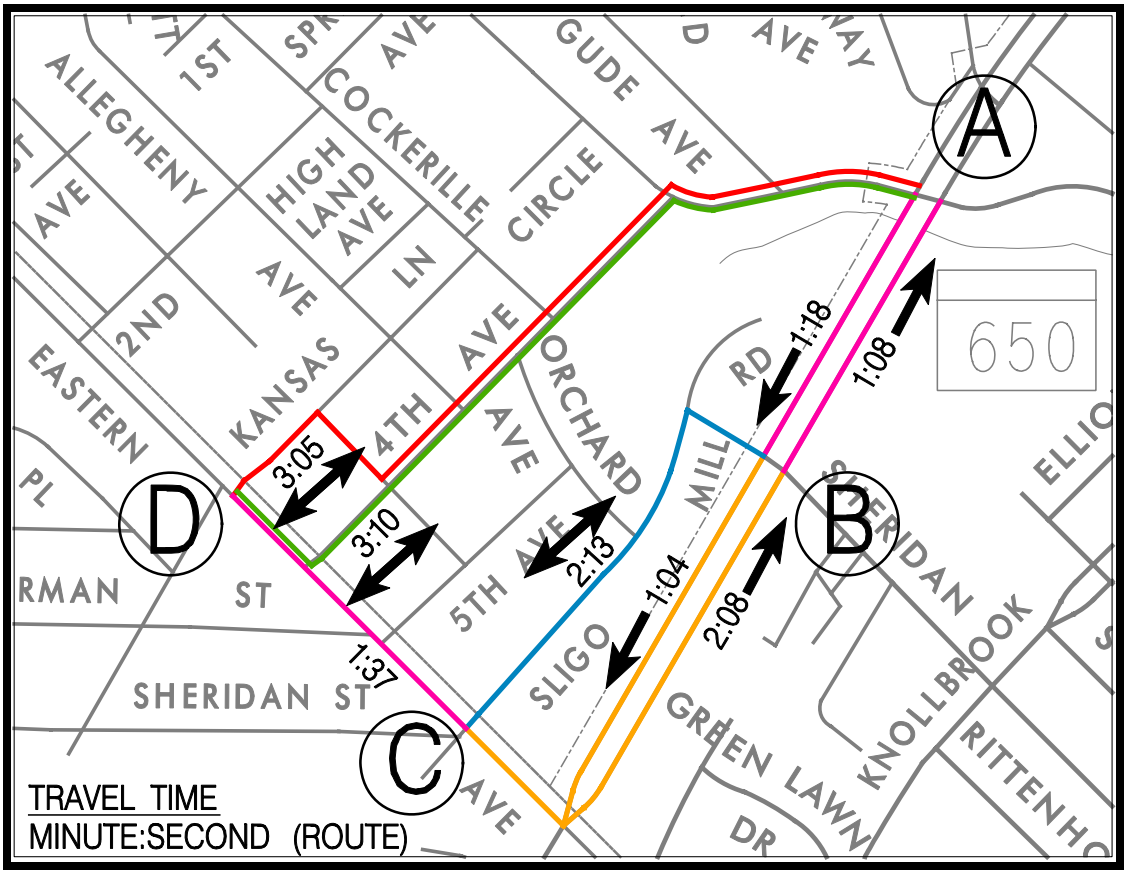

Figure 3. Cut-Through Route Map

3. Speed Analyses

Spot speed studies were performed during non-peak period times (10 AM – 3 PM) on Thursday, May 24, 2007 along the following Long Branch/ Sligo neighborhood roadways to determine the vehicular speeds:

- Sligo Mill Road – Between Eastern Avenue and Orchard Avenue (Timed)
- Sligo Mill Road – Between Orchard Avenue and Sheridan Street (Timed)
- Fifth Avenue – Between Westmoreland Avenue and Orchard Avenue (Timed)
- Fourth Avenue – Between Allegheny Avenue and Orchard Avenue (Speed Gun)
- Kansas Lane – Between Eastern Avenue and Westmoreland Avenue (Speed Gun)
- Poplar Avenue – Adjacent to Gude Avenue (Timed)
- Westmoreland Avenue – Between Kansas Lane and Fourth Avenue (Speed Gun)
- Allegheny Avenue – Between Kansas Lane and Fourth Avenue (Timed)

The speeds were recorded for both directions either by a speed gun or timed via stop watch over a measured distance. **Table 2** summarizes the travel speeds collected within the neighborhood, and **Appendix C** provides detailed worksheets of the spot speed studies.

Table 2. Travel Speed Summary

Roadway	Location	Percentile Speed (mph)					
		Direction 1 (NB/EB)			*Direction 2 (SB/WB)*		
		50%	85%	>25 mph (%)	50%	85%	>25 mph (%)
Sligo Mill Rd	Eastern Ave & Orchard Ave	23	26	24	19	23	6
	Orchard Ave & Sheridan St	17	22	0	16	21	2
5th Ave	Westmoreland Ave & Orchard Ave	17	18	0	17	20	0
4th Ave	Allegheny Ave & Orchard Ave	21	27	34	22	26	22
Kansas Ln	Eastern Ave & Westmoreland Ave	23	27	31	22	26	35
Poplar Ave	Adjacent Gude Ave	26	33	60	27	33	69
Westmoreland Ave	Kansas Ln & 4th Ave	17	17	33	20	23	0
Allegheny Ave	Kansas Ln & 4th Ave	15	15	0	14	20	20

The 50th percentile speed represents the median speed, and the 85th percentile speed represents the speed that drivers select as the highest safe speed and often determines the speed limit for the roadway. The 85th percentile travel speeds along Sligo Mill Road, Fourth Avenue, Kansas Lane, and Poplar Avenue were above the posted speed limit of 25 mph.

E. SUMMARY & RECOMMENDATIONS

The residents of the Takoma Park neighborhood of Pinecrest, located in southeastern Montgomery County, Maryland, have expressed concerns of speeding and cut-through traffic within their neighborhood roadways. The origin-destination study confirmed that Sligo Mill Road and Fourth Avenue are significantly used as cut-through roadways, and the travel time study confirmed that these routes do significantly decrease travel times for motorists accessing MD 650 and Eastern Avenue. The speed study confirmed that 85th percentile travel speeds within the neighborhood major roadways are above the posted speed limit.

As mentioned previously, the focus for the Pinecrest neighborhood is to recommend measures to reduce speeds. Currently the neighborhood uses some speed humps and regulatory signs (Stop and Speed Limit signs) to calm traffic. The significant on-street parking indirectly calms traffic by narrowing the roadway widths.

The following recommendations identify proposed measures that may be implemented to improve traffic calming for the Pinecrest neighborhood.

1. New Speed Hump Locations

A few sections of roadway along major neighborhood routes do not have speed humps. Installing additional speed humps at new locations along Fourth Avenue, Kansas Lane, and Poplar Avenue may reduce speeds as well as travel times through the neighborhood. The locations of the recommended improvements are diagramed in **Figure 3**. These improvements will cost approximately $8,000 ($2,000/speed hump). **Appendix C** provides a standard detail for a speed hump

Picture 1. Existing speed hump in good condition

2. Regulatory Signs

A few of the locations entering the neighborhood do not provide 25 mph posted speed limit signs. Providing Speed Limit signs along all the roadways entering from MD 650 and Eastern Avenue will improve driver awareness of the travel speeds for all motorists entering the neighborhood. The locations of the recommended improvements are diagramed in **Figure 3**. This improvement will cost approximately $1,500 ($300/sign).

A few of the all-way stop controlled intersections do not provide “All Way” supplement signs (R1-4) under the Stop sign. Installing “All Way” supplement signs under all of the Stop signs at the Kansas Lane/ Westmoreland Avenue intersection may improve the driver awareness of the operations of the intersections. This improvement will cost approximately $50.

Turn restriction signs throughout the Pinecrest neighborhood are systematically being ignored by motorists. Discussions with neighborhood residents and City staff has proven that the signs were installed many years ago in an attempt to reduce traffic volumes through the neighborhood. Primarily, we recommend the removal of all turn restriction signs after the implementation of the other traffic calming recommendations here-in. Additionally, we recommend the removal of the turn restriction signs throughout the neighborhood as they currently prohibit access to several businesses and residents during key operating/access periods.

If the City of Takoma Park does not implement the above recommendation, at a minimum we recommend relocating the left-turn restriction sign at the Eastern Avenue/ Sligo Mill Road intersection so approaching westbound motorist can clearly see the turn restriction. The location of the recommended improvement is diagramed in **Figure 3**. This improvement will cost approximately $250.

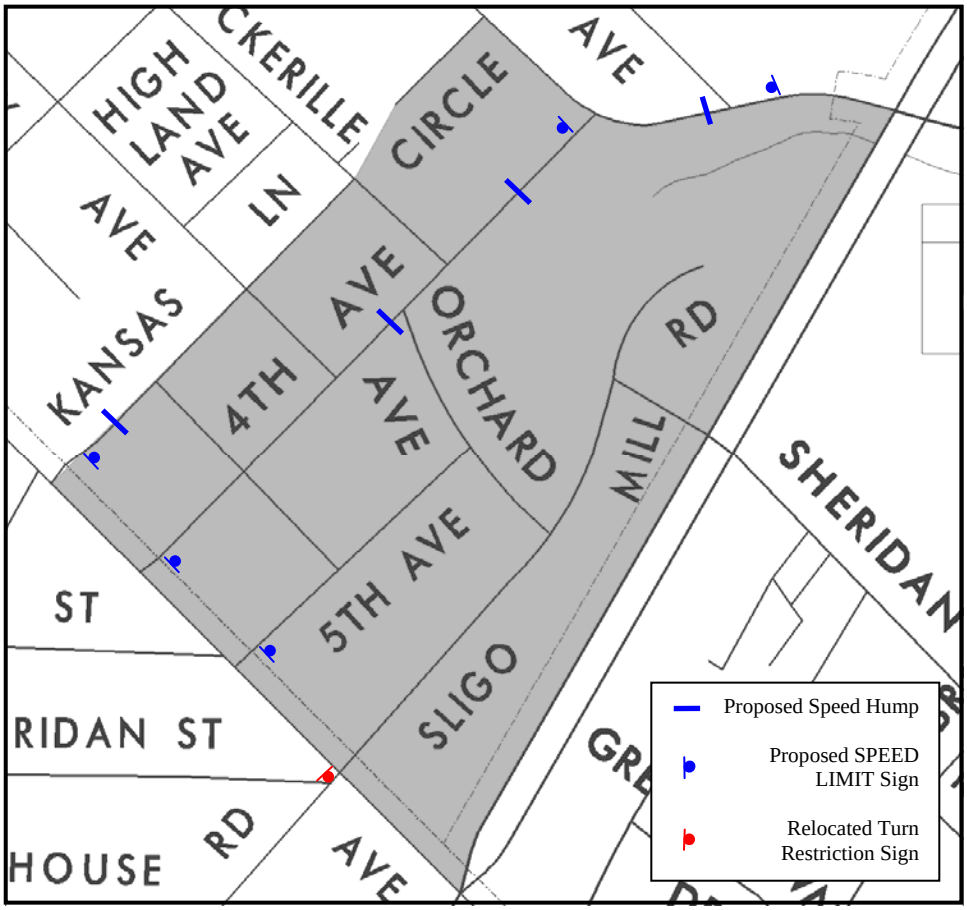

Figure 4. Recommended Improvement Location Map

3. Chicane Location

Poplar Avenue between MD 650 and Fourth Avenue experienced the highest measure travel speeds. If the proposed speed hump along this stretch of roadway proves to be ineffective, replacing the speed hump with a one-lane chicane will effectively reduce speeds. (See **Pictures 4 & 5** for examples) Coordination with potential impacted property owners will be needed, because this type of traffic calming device will eliminate on-street parking. This improvement will cost approximately $5,000. **Appendix D** provides a site sketch for a chicane alignment along Poplar Avenue.

Pictures 4 & 5. Examples of One-Lane Chicanes

Appendix A

Origin-Destination Worksheets

Appendix B

Spot Speed Study Worksheets

Appendix C

Speed Hump Standard Detail

Appendix D

Chicane Site Sketch